

## REMARKS

Two drawing sheets are submitted with this amendment. In studying the original drawings, Applicants' attorney noted an error in one of the reference characters used in Fig. 2. In particular "176" appeared in place of "17b", the proper reference character. The first drawing sheet shows a proposed amendment to Fig. 2. The proposed amendment is shown in red ink and is a simple substitution of "17b" for "176" at the appropriate location in the drawing. This change would make Fig. 2 consistent with the other drawings and the text of the specification. The second drawing sheet is a substitute Fig. 2 in which the proposed change has been incorporated into the drawing. This sheet can be substituted into the application, assuming that the proposed change is approved, as is expected, by the Examiner.

Minor changes are made to the specification. In the application as filed, the element associated with reference character 51 was referred to in some locations as a "sub-*blade*", and in other locations as a "sub-*frame*". The amendments in this paper cause the element in question to be referred to as a "sub-blade" in every location. This change is made for consistency and clarity, and no new matter is added thereby.

The application was filed with 24 claims. Claim 1 is cancelled; claims 2-6, 14, and 24 are amended; and new claims 25-42 are added in this paper. Claims 2-42 are now pending in the application for examination.

Claim 4 was rejected under section 112 for being indefinite. Applicants' counsel sincerely appreciates the Examiner's thorough and careful examination of these claims, as evidenced, in particular, by this section 112 rejection. The original claim had reversed the relative lengths of the portions of the second wiping member projecting from the first and second supporting members. This error has been remedied in amended claim 4 by substituting "greater" in place of "shorter", which was used in the original claim.

Claim 14 was objected to for an obvious misspelling of "engages". This error has now been corrected.

Claims 1-3, 5, and 24 were rejected under section 102(b) as being allegedly anticipated by the Holbrook patent. Claim 1 is cancelled in this paper, and claims 2 and 3 are amended to depend from amended claim 5.

As amended, claim 5 requires a cleaning device with a "first wiping member" and a "flat plate form second wiping member":

wherein a tip end surface of said first wiping member first comes in substantially *perpendicular* contact with a side surface of said second wiping member and then moves across said side surface.

This is not true of Holbrook's device, in which the cited first wiping member (77) first comes into contact with the cited second wiping member (75) *obliquely*. Holbrook's first and second wiping members are in fact more nearly *parallel* (see Fig. 6) at their point of first contact than they are to *substantially perpendicular*.

Amended claim 5 is thus distinct from the art cited against it, and the prompt allowance of that claim is therefore respectfully requested. Allowance of claims 2, 3, and 6-13 is similarly requested, as each of those claims depends in some way from amended claim 5.

The Examiner's indication of allowable subject matter in claim 4 is appreciated. That claim has now been rewritten, as noted above, to overcome the section 112 rejection, and to place it in independent form with all of the limitations of the base claim from which it formerly depended. Claim 4 should thus now be in condition for allowance, as should new claims 25-34, each of which depends directly or indirectly from it. The allowance of claims 4, and 25-34 is therefore respectfully requested.

Claims 6-13 were objected to as depending from a rejected base claim, with allowable subject matter indicated therein. Claim 6 has been amended to place it in independent form, with claims 7-13 depending directly or indirectly from it. The allowance of those claims is therefore respectfully requested.

The allowability of original claims 14-23 is acknowledged with appreciation.

Claim 24 is a multiple dependent claim. As amended, claim 24 depends from every other claim currently pending in the application. The allowance of claim 24 is

thus respectfully requested, for the reasons described above in connection with each of the claims from which amended claim 24 now depends.


In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (213) 337-6711 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,  
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Version with markings to show changes made:

IN THE SPECIFICATION:

At page 44, line 1:

(Wiping Operation by Elastic [Sub-Frame] Sub-Blade)

At page 45, lines 6-14:

According to movement of the cleaner lever 25, the elastic [sub-frame] sub-blade 51 maintains substantially, in the deflected state with a radius of R1 and rubs off the foreign matter on the rubber member 26a of the elastic wiping blade 26 and the metal blade 27. By this, not only the foreign matter deposited on the first blade portion 26c of the elastic wiping blade 26 but also those deposited on the rubber member 26a of the elastic wiping blade 26 and those deposited on the metal blade 27 can be scraped off.

At page 45, line 27 – page 46, line 14:

When the cleaner lever 25 is lowered after completion of cleaning of the nozzle surface 3 of the ink-jet head 2, the third blade portion 27a of the metal blade 27 contacts with the elastic [sub-frame] sub-blade 51 in tilted condition. As a result, the foreign matter deposited on the upper surface of the elastic [sub-frame] sub-blade 51 or the second blade portion 51a is scraped and drops into the blade receptacle portion 45.

On the other hand, as shown in Fig. 6C, according to lowering of the cleaner lever 25, the elastic [sub-frame] sub-blade 51 deflects downwardly at the portion of the length L2 projecting from the first support member 48 of the frame supporting body 48. Throughout the period contacting with the elastic wiping blade 26, the deflected condition with a curve radius R2 which is greater than the curve radius R1 is substantially maintained.

IN THE CLAIMS:

2. (Amended) A cleaning device as set forth in claim [1] 5, wherein  
said first wiping member is designed to move between said retracted position and said wiping position located above said retracted position, by moving a cleaner lever, and  
said second wiping member is arranged above said retracted position and below said wiping position.
3. (Amended) A cleaning device as set forth in claim [1] 5, wherein said cleaner lever has a third wiping member which is able to contact with said second wiping member while said cleaner lever is moving.
4. (Amended) A cleaning device [as set forth in claim 1, further comprising] for cleaning a nozzle surface of an ink-jet head, comprising:  
a first wiping member for wiping said nozzle surface;  
a cleaner lever for supporting said first wiping member;  
a lever driving mechanism moving said first wiping member  
between a retracted position located away from said nozzle surface and  
a wiping position for wiping said nozzle surface;

a flat plate form second wiping member formed of an elastic body arranged within a moving path of said first wiping member so as to contact with said first wiping member;

a first supporting member supporting said second wiping member on the side of the retracted position of said first wiping member; and[,]

a second supporting member supporting said second wiping member on the side of said wiping position of said first wiping member;

wherein a length of a portion of said second wiping member projecting from said first supporting member is [shorter] greater than a length of a portion of said second wiping member projecting from said second supporting member.

5. (Amended) A cleaning device for cleaning a nozzle surface of an ink-jet head, comprising: [as set forth in claim 1,] <sup>62</sup>

a first wiping member for wiping said nozzle surface;

a cleaner lever for supporting said first wiping member;

a lever driving mechanism moving said first wiping member between a retracted position located away from said nozzle surface and a wiping position for wiping said nozzle surface; and

a flat plate form second wiping member formed of an elastic body arranged within a moving path of said first wiping member so as to contact with said first wiping member; <sup>64</sup>

wherein a tip end surface of said first wiping member first comes in substantially perpendicular contact with a side surface of said second wiping member and then moves across said side surface.

6. (Amended) A cleaning device for cleaning a nozzle surface of an ink-jet head, comprising: [as set forth in claim 1,]

a first wiping member for wiping said nozzle surface;

a cleaner lever for supporting said first wiping member;  
a lever driving mechanism moving said first wiping member  
between a retracted position located away from said nozzle surface and  
a wiping position for wiping said nozzle surface; and  
a flat plate form second wiping member formed of an elastic  
body arranged within a moving path of said first wiping member so as  
to contact with said first wiping member;

wherein said lever driving mechanism includes:

a rotary driving source;

a gear train to be driven by said rotary driving  
source;

a friction type clutch lever which is frictionally  
engaged with one of gears constituting said gear train by  
means of a predetermined biasing force and is arranged  
coaxially with said gear;

a first cam mechanism for converting rotation of  
said clutch lever into movement of said cleaner lever; and

a tooth portion formed on said clutch lever which  
engages with said gear train when said clutch lever is in a  
predetermined rotational angular range.

14. (Amended) A cleaning device for cleaning a nozzle surface of an  
ink-jet head, comprising:

a first wiping member for wiping said nozzle surface;

a cleaner lever for supporting said first wiping member; and

a lever driving mechanism moving said first wiping member  
between a retracted position located away from said nozzle surface and  
a wiping position for wiping said nozzle surface; wherein said lever  
driving mechanism includes:

a rotary driving source;

a gear train to be driven by said rotary driving source;  
a friction type clutch lever which is frictionally engaged with one of gears constituting said gear train by means of a predetermined biasing force and is arranged coaxially with said gear;  
cam mechanism converting rotation of said clutch lever into movement of said cleaner lever; and  
a tooth portion formed on said clutch lever which [engges] engages with said gear train when said clutch lever is in a predetermined rotational angular range.

24. (Amended) An ink-jet printer comprising:

an ink-jet head;  
a cleaning device which is arranged offsetting from a printing region of said ink-jet head and is defined in any one of claims [1] 2 to 23 and 25 to 34; and  
a carriage carrying said ink-jet head for reciprocally moving along a moving path through said printing region and a position opposing to said cleaning device.